NOTES FROM 09.14.05 PROTON DRIVER MEETING - CIVIL

Attendees: Bill Foster, Rich Stanek, Dixon Bogert, Bob Webber, Jerry Leibfritz, Kamran Vaziri, Mike Andrews, Duane Plant, Mike May, Rod Walton, Lee Hammond, Gary VanZandbergen, Chuck Federowicz, John Santic, Paul Lahn, Elaine McCluskey

ITEMS DISCUSSED:

1. **Typical RF station layout for vertical and horizontal:**
    a. Need to determine cable and waveguide penetration locations. Bob W to try to get people to work on this
    b. Racks – won't need all 12 in ultimate version; during initial version, some will be in "future" rf station locations to feed cryomodules below
    c. Question of charging supplies and modulators being moved in their entirety when replacement is necessary, or being disassembled? Also question about type of oil being used – is it flammable?
    d. Mike M and Jerry to try to get info from Chris Jensen on this.

2. **Looked at long drawing showing entire linac gallery:**
    a. Clearance in aisle required is width of moving equipment (later confirmed by Jerry Liebfritz to be 53" wide) and room for a person to pass (36"?)
    b. Height of building – gallery at 20 ft for vertical klystron, with 540 building at 12' clear, or about 14' high
    c. Trench for electrical – about 4'x4', like MI60. Need to be able to stand in it. Reserve room for 8" oil containment pipe.
    d. Duct from mechanical room – need to understand routing
    e. Setting of floor elevation – 2 ft above historical flood level

3. **540 Building areas:**
    a. Gary showed preliminary layout of rooms
    b. 2 hour wall on road side means that substation can be 5 ft away, not 25 ft. Question is whether this has to be a blast wall – part of life safety study
    c. 2 mechanical rooms, 1 pump room, work area, tech space, stair, electrical, toilet, janitorial, loading area. Need to get Maurice Ball input on LCW pump room
    d. Work area is 12' clear height. Decision to blend this into loading area. Door into corridor should be same height as MI60 high bay doors
    e. Q-room – call this a control room with audible noise suppression
    f. Bill wants to see if space is redesigned to be flat against the gallery rather than in a more square grouping, if that would work. Gary to lay out.

4. **Revised site plan:**
    a. 540 areas show parking at each –should be equivalent to MI service building parking areas
    b. Plan on semi trucks pulling into each of these areas for deliveries. As shown, trucks would have to back down drive, not pull in and backup to door.
    c. Need hardstand at LCW pump room for servicing equipment
    d. 30 ft corridor allotted between building and road for utility corridor
    e. Power and communication lines in the road, as in MI
    f. Might consider composting toilets, but would still need sanitary sewer in these areas for floor drains, etc.

5. **L-0 Building Layout:**
    a. Need to better understand overhead door at gallery interface
    b. MI31 equipment lift should be used as model for what our "elevator" should be like: specs for that were: 5000#, 100 fpm, platform 72" x 121.5" plan size, car height 96", bi-parting doors. Jerry said this is very useful lift for work at MI31.
    c. Crane over hatch: used to move only lighter front end equipment; will need crane for moving klystrons (horz to lift to truck, vert to service)
    d. Elevator versus hatch may depend on installation schedule, what is already assembled elsewhere on site

6. **Provision for future muon circulator:**
    a. Bill and Dixon discussed where provision could be made for connection for future muon circulator. Bill said this would be in the tunnel in the beta<1 area. Therefore, doesn't impact L-0 building

7. **Machine power**

a. John talked about summary he'd prepared (and had been distributed) regarding machine power for linac. This doesn't include transfer line
b. Conclusion was that in general, this looks ok. Need to talk with Howie Pfeffer about power draw from charging power supply – could require new or different harmonic filters
c. These assumptions produce 3-1500 kva transformers and 1-750 kva transformer at each 540 area.
d. Next need to start looking at power requirements in transfer line

8. **Report from Kamran on shielding analysis:**
   a. These calculations are for the 2MW beam. Results show a 2-legged penetration (L-shaped) connecting to the top of the enclosure is the way to go.
   b. Has also calculated the dose rate at the top of the stairs (DWG: 4-2-1 page 13) for a 1E-4 beam loss (similar to most of the RF-penetration calculations) of 8GeV beam in front of the stairs. For the worse case, the radiological posting at the exit of the stairs will be Controlled Area, Unlimited Occupancy.
   c. Kamran later sent a summary of his shielding calcs, which we put in our project file for record.

Actions:

- Bob Webber to look into cooling of waveguide penetrations
- Mike May and Jerry to talk with Chris Jensen about his vision for how charging supplies and modulators would be replaced/moved
- Bob W to try to get information on optimum location of cable penetrations in each RF station
- Gary to make alternate layout for 540 area that arranges it close to linac gallery
- Elaine will contact Howie Pfeffer to get input on charging power supply draw

Next meeting scheduled for 9/28/05 at 9:30 in WH5NE